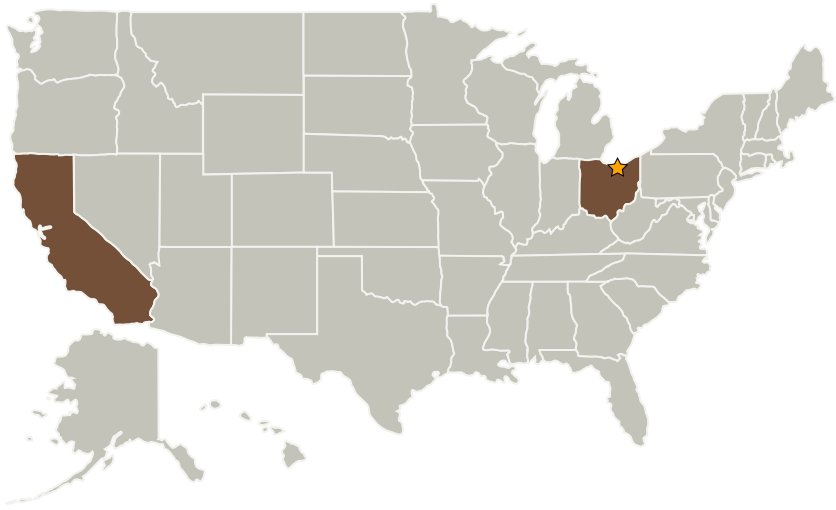
Integrated Multidisciplinary Optimization Objects, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

M4 Engineering proposes to implement physics-based, multidisciplinary analysis and optimization objects that will be integrated into a Python, open-source framework and used in a wide variety of simulations. The integrated objects will perform discipline-specific analysis across multiple flight regimes at varying levels of fidelity. The process will also deliver system-level, multi-objective optimization. Addressing physics-based, system-level objectives that span more than one discipline will have profound effects on improving decision-making abilities during the conceptual design phase when evaluating advanced technological concepts. In the proposed effort, existing capabilities will be leveraged to create a high fidelity, physics based, multidisciplinary analysis and optimization (MDAO) system. This proposed work will compliment M4 Engineering's expertise in developing modeling and simulation toolsets that solve relevant subsonic, supersonic, and hypersonic demonstration applications.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
M4 Engineering, Inc.	Supporting Organization	Industry Women-Owned Small Business (WOSB)	Long Beach, California

Primary U.S. Work Locations	
California	Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  - TX15.1 Aerosciences
    - TX15.1.3 Aeroelasticity